



# UbuntuBuzz Magazine Bundle

A Monthly Bundle from  
UbuntuBuzz.com

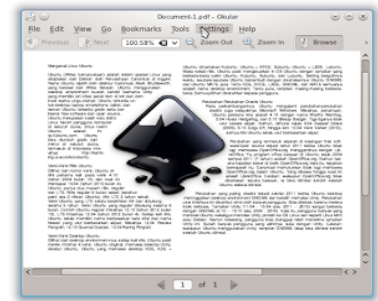
ISSUE #7  
October 2015

## OpenVPN DNS Leak?

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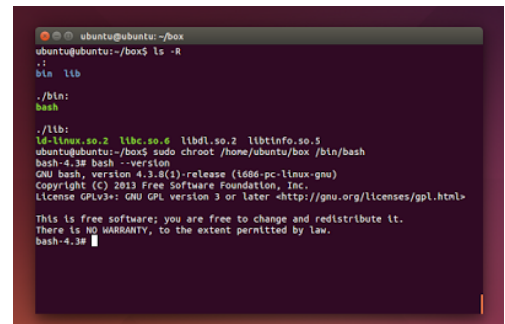


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# HOW TO FIX OPENVPN DNS LEAK IN LINUX

[Source URL](#)

If you follow our previous OpenVPN tutorial, you probably find that your DNS request could be leaked. It means anyone may see what you were browsing for. So how to fix DNS leak in OpenVPN? Here we show you how.

## Intro

OpenVPN has a special behavior in which it will not change your default DNS. OpenVPN encrypt your connection to the internet, but it doesn't encrypt your DNS request. If so, anyone can not see your traffic, but someone can see your DNS request (i.e. to block you). That is DNS leak. OpenVPN should change DNS into its VPN DNS server and can revert back into your original DNS. In Linux, you will deal with `/etc/resolv.conf` file manually to do that. To prevent DNS leak, OpenVPN needs help from another process. And it will automatically update `/etc/resolv.conf` for you.

## 1. Edit The .ovpn File

You just need to add these three lines of config into your `.ovpn` file. Add these to the end of file as new lines.

```
script-security 2
up /etc/openvpn/update-resolv-conf
down /etc/openvpn/update-resolv-conf
```

Explanation: OpenVPN (if you install it from Ubuntu repo) has a special script named `update-resolv-conf`. This script will update your `/etc/resolv.conf` file automatically. It will force OpenVPN to use default DNS from your `.ovpn` file.

## 2. Run The .ovpn File

```
sudo openvpn --config name_of_your_file.ovpn
```

## 3. Test DNS Leak

Browse <http://dnsleaktest.com> and start a standard test. See that your DNS changed into another than your ISP DNS (thus VPN's DNS). In this example, I use vpngate VPN service and Google as my DNS.

## Reference

- <https://forum.vpn.ac/discussion/13/running-openvpn-in-linux-terminal-with-no-dns-leaks>
- <https://github.com/masterkorp/openvpn-update-resolv-conf>
- <https://wiki.archlinux.org/index.php/OpenVPN#DNS>

# HOW TO BIND OPENVPN TO MOBILE BROADBAND PPP0 INTERFACE

[Source URL](#)

One problem when you use OpenVPN is you can not bind OpenVPN connection to mobile broadband ppp0 interface. This ppp0 interface is commonly used when you are using USB modem. To bind OpenVPN into ppp0 interface, you must configure it manually. This is a routing for all connection to your ISP gateway via ppp0 interface. Don't be afraid, you will need only two commands. Here for example.

## 1. Connect to Internet

Connect to the internet from your USB modem (mobile broadband). Don't connect your OpenVPN first. You may use wvdial here.

## 2. Know Your Gateway

```
/sbin/ip addr show ppp0 | grep peer | awk ' { print $4 } ' | sed 's/\/32//'
```

Explanation: this command will find out your gateway address. First, it will invoke ip command to show ppp0 information, then it grabs a line contains "peer" word, then it grabs fourth word from left (which is IP address of the gateway), and finally remove "/32" notation from the address. For example, my gateway address is 10.20.31.30.

## 3. Bind Connection into ppp0

```
ip route replace default via 10.20.31.30 dev ppp0
```

Explanation: this command will route all connections to 10.20.31.30 gateway through ppp0 device interface. Later, any OpenVPN connection will go through this route. Of course you must change gateway address with your own.

## 4. Connect OpenVPN

Finally, connect your OpenVPN. Now you should have your connection go through ppp0 (mobile broadband) correctly.

## Reference

<http://askubuntu.com/questions/580014/how-to-bind-openvpn-to-ppp0-from-mobile-broadband>

# DOCFETCHER: A "GOOGLE DESKTOP" FOR LINUX

[Source URL](#)

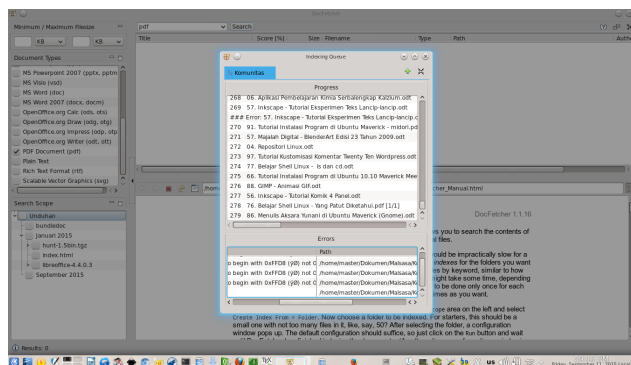
Are you looking for Google Desktop in Linux? Google never release that program for Linux. Instead, we have an alternative from DocFetcher. It is a great replacement for Google Desktop with more features such as selecting what type of file to index. We can select what folder to index, what filetype, and view strings found in every file. DocFetcher can show search result in a table so you can search for a string in all PDF you have. Here we show how to install in Ubuntu and how to use it. DocFetcher official site is <http://docfetcher.sourceforge.net>. Thanks to qforce for providing DocFetcher.

## How To Install

1. Install Java JRE first with command: `sudo apt-get install default-jre`
2. Download DocFetcher Portable from <http://docfetcher.sourceforge.net/en/download.html>. you will get a ZIP archive contains DocFetcher programs. That is Linux version.
3. Extract the ZIP file. Open DocFetcher folder.
4. Give it executable permission with command: `chmod a+x DocFetcher.sh`
5. Double click DocFetcher.sh file.

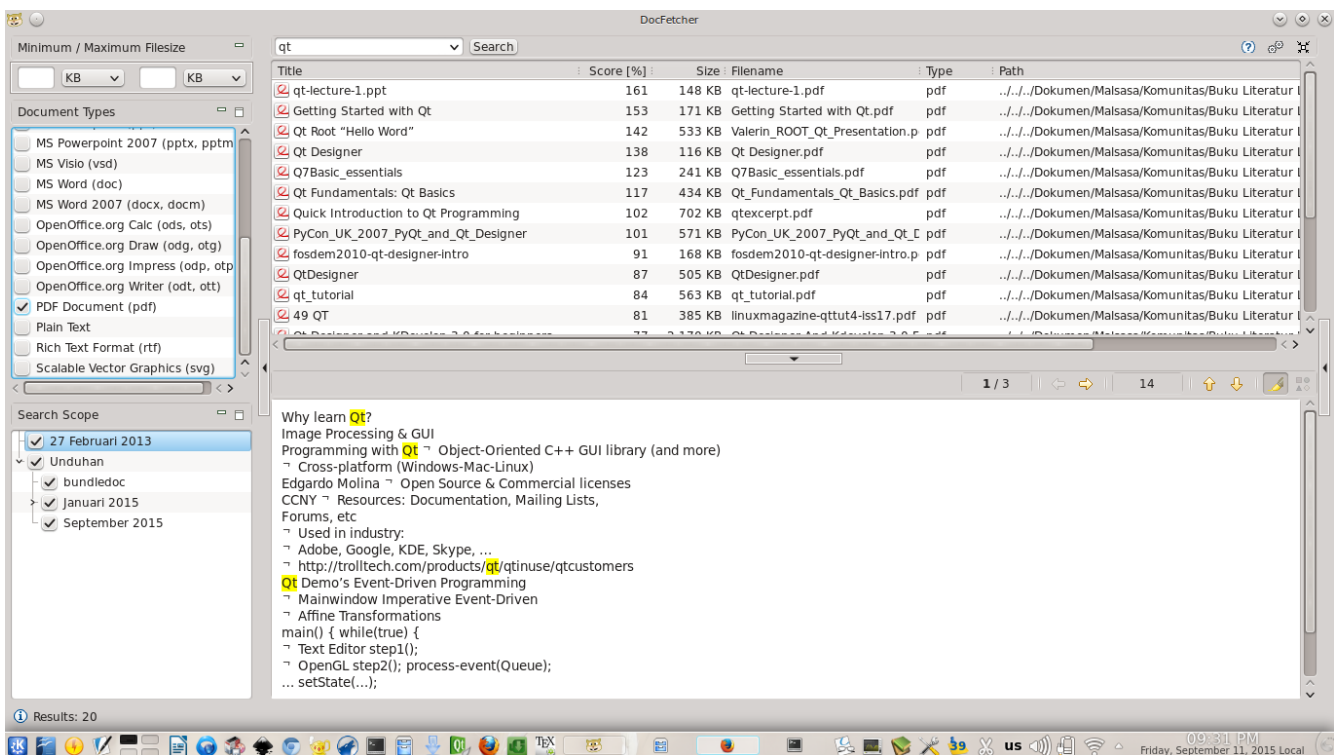
## How To Use

As an example, I will show you how to index PDF and HTML files from my personal folder. I want to search through all PDF and HTML files I have. So I need no Google again (and no internet again of course) to do searching.



1. Open DocFetcher.
2. Right-click on bottom-left panel > Create index from > Folder > select a folder you want to index. I choose my personal folder contains PDF and HTML.

3. In indexing configuration dialog, press OK.
4. DocFetcher will fetch them all and save them to index. This is your "Google Database".
5. Wait until finish.
6. To search, type on the most top text box > Enter.
7. DocFetcher will show you all PDF or HTML contains string you've entered. Just like normal googling.
8. As a bonus, you can read PDF or HTML file inside DocFetcher on the bottom panel viewer.
9. On picture below I show you searching for string "qt" to all PDF files I have. As a result, a table contains list of files showed. It is just like googling. It is very easy. Enjoy.

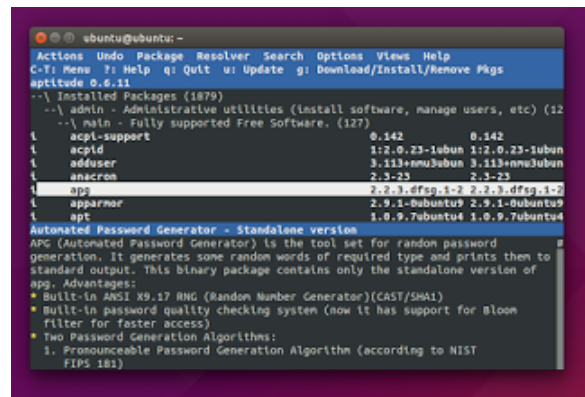




# HOW TO INSTALL APTITUDE IN UBUNTU 15.04

[Source URL](#)

When you work with apt in Terminal, you probably want a powerful alternative. There is aptitude, an awesome front-end for apt. It gives us Terminal-style interface and also gives us command replacement to apt. By using aptitude interface, you can do point and click in Terminal to use its menu and buttons. It is very lightweight but powerful. This is how to install aptitude in Ubuntu 15.04.



## Command

```
sudo apt-get install aptitude
```

## Explanation

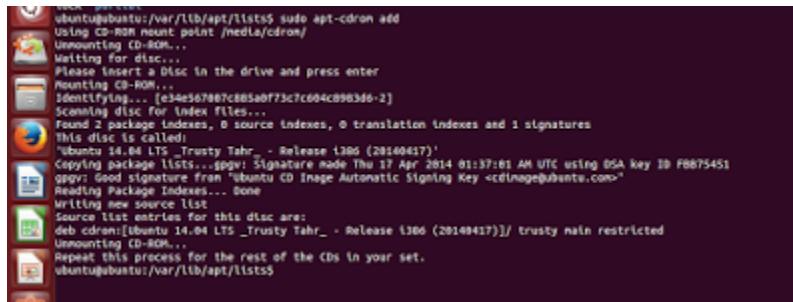
- It downloads 4 dependencies including aptitude itself.
- It needs approximately 2 MB to download 12 MB to install.

# HOW TO OFFLINE INSTALL WVDIAL IN UBUNTU AND LINUX MINT

[Source URL](#)

The problem when you are using USB modem in Ubuntu, is, sometimes you will need wvdial but wvdial itself need to be installed first. Fortunately, Ubuntu included wvdial in its official ISO since long time ago. Further, it means wvdial is available in Ubuntu LiveCD but it is not when Ubuntu have been installed. In LiveCD, just command `sudo apt-get install wvdial` and you install it completely without internet. Yes, Linux Mint has same behavior too. It is probably a secret only few people know. To install it, just insert your Ubuntu CD (same version, same architecture) and command `apt-cdrom` it to be your additional repository.

## Ubuntu



```
ubuntu@ubuntu:/var/lib/apt/lists$ sudo apt-cdrom add
Using CD-ROM mount point /media/cdrom/
Unmounting CD-ROM...
Waiting for disc...
Please insert a Disc in the drive and press enter
Mounting CD-ROM...
Identifying... [e34e567907c885a0f73c7c094c8963d6-2]
Scanning disc for index files...
Found 2 package indexes, 0 source indexes, 0 translation indexes and 1 signatures
This disc is called:
'ubuntu 14.04 LTS _Trusty Tahr_ - Release 1306 (20140417)'
Copying package lists... gpgv: Signature made Thu 17 Apr 2014 01:37:01 AM UTC using RSA key ID F8B75451
gpgv: Good signature from "ubuntu CD Image Automatic Signing Key <cdimage@ubuntu.com>"
Reading Package Indexes... Done
Writing new source list
Source list entries for this disc are:
deb cdrom:[ubuntu 14.04 LTS _Trusty Tahr_ - Release 1306 (20140417)]/ trusty main restricted
Unmounting CD-ROM...
Repeat this process for the rest of the CDs in your set.
ubuntu@ubuntu:/var/lib/apt/lists$
```

1. In your installed Ubuntu, open Terminal.
2. Do command: `sudo apt-cdrom add`
3. Terminal (`apt-cdrom`) will ask for Ubuntu CD. Insert it. **WARNING:** insert only Ubuntu CD which has same version and same architecture (example: CD 12.04 32 bit for 12.04 32 bit).
4. Press Enter.
5. Terminal (`apt-cdrom`) will scan it and create its index (called source list).
6. Do command: `sudo apt-get update`
7. Do command: `sudo apt-get install wvdial`
8. You will have wvdial + dependencies installed from Ubuntu CD without any internet connection.
9. Yes, offline completely. Now you can connect your modem to internet.

## Linux Mint

Same like Ubuntu except number 3. Insert Linux Mint CD, not Ubuntu CD.

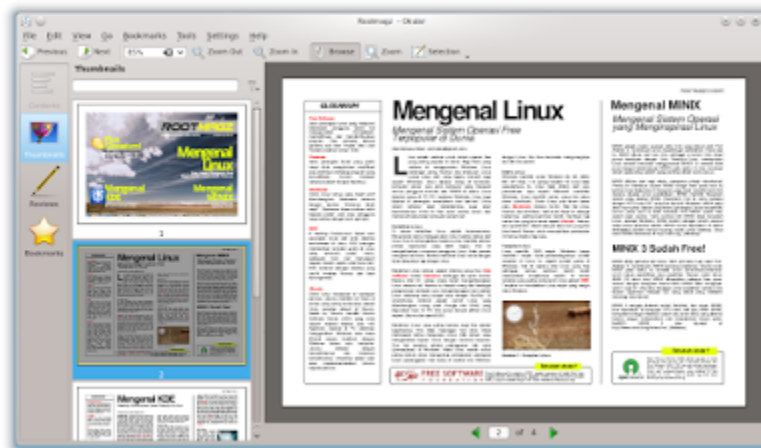
## Explanation

In Ubuntu 14.04:

- wvdial has 4 dependencies: libwvstreams4.6-base, libwvstreams4.6-base, libuniconf4.6, wvdial.
- If you are failed with this tutorial, go to <http://packages.ubuntu.com> and download one by one those 4 packages. That four downloading is perfectly same with this tutorial except the download source. This guide = CDROM, that four downloading = internet.
- wvdial and its three dependencies are from main component of Ubuntu repository.
- Yes, Ubuntu and Linux Mint includes some packages of main component of repository including wvdial in their ISO. So, this tutorial is not restricted for wvdial only.
- Installing wvdial in Ubuntu or Linux Mint LiveCD is working perfectly, but won't in Ubuntu or Linux Mint permanently installed ones.
- This guide is adaptable to all Ubuntu versions and Linux Mint too. Not restricted to 14.04 only.

# HOW TO CREATE MAGAZINE LAYOUT IN SCRIBUS

I've published a digital magazine created from Scribus. Now, I want to share how to create a magazine like that. So, you can create that magazine yourself. This tutorial tells about internal page layout. I want to tell cover page layout in next tutorial. My foreword is you will deal with F2 (Properties) intensely in Scribus. My magazine picture looks like below. Enjoy.

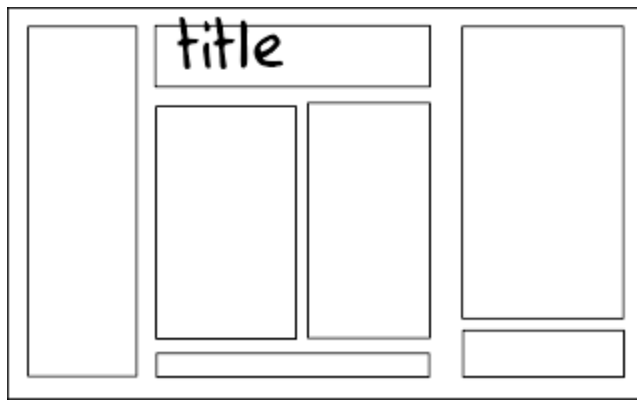


## Ingredients

1. Scribus
2. Properties (F2), Text Frame (T), Link Text Frame (N), Insert Image Frame (I)
3. FreeSans font ([download here](#))
4. A complete article in TXT
5. A picture in PNG
6. Focus on the blank spaces, not the contents
7. Don't think Scribus as Libreoffice Writer, they are too different
8. Pen and paper

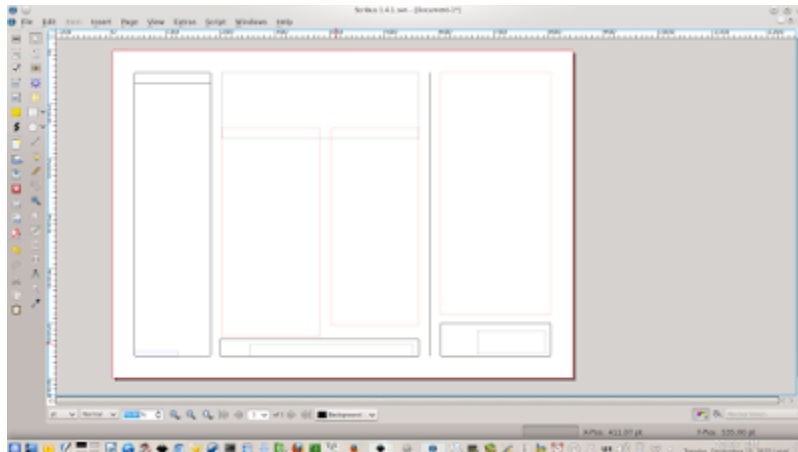
## Sketching

Sketch on your paper a concept layout design like this.



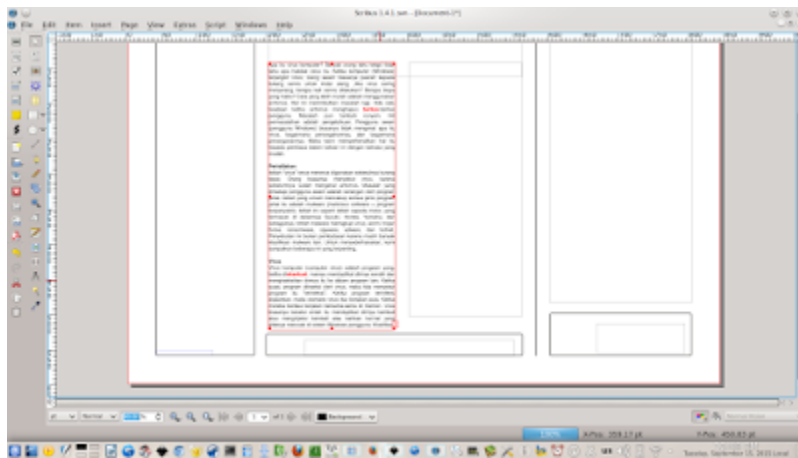
## Putting Text Boxes

Create text boxes (Scribus calls it text frame) based on your sketch. See, the frames put as columns. Ignore the most left column below (that is shape, not text box). You will see the result like this.



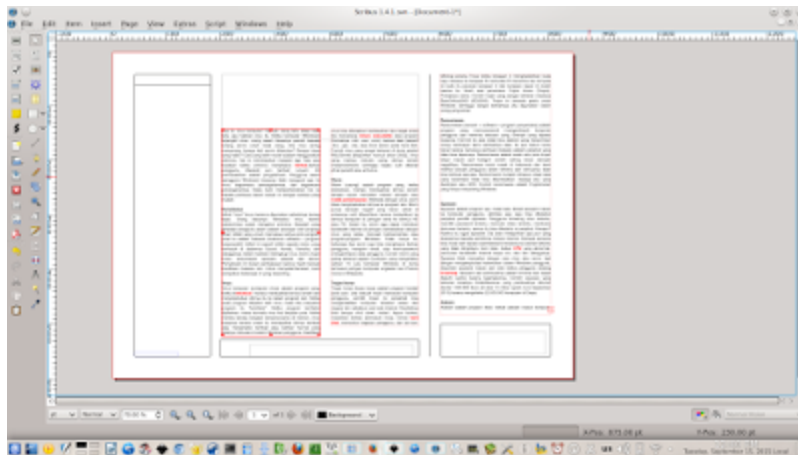
## Insert Text

Double click the first text boxes, paste your text. Yes, your long text will not fit one single text box. You will see a little red box contains X letter in its bottom-right. You will see the result like this.



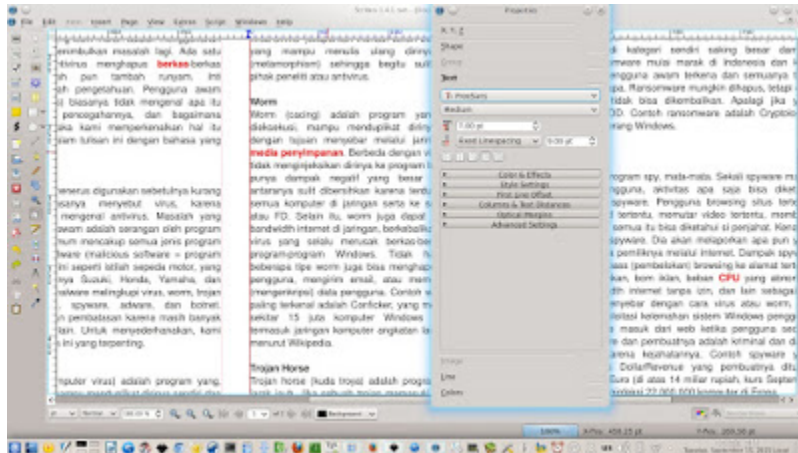
## Link Text Boxes

Click the first text frame, click Link Text Frame (N) button, click second text frame. This will continue your text into frame number two. You can link again from number two to three as you like. You will see the result like this.



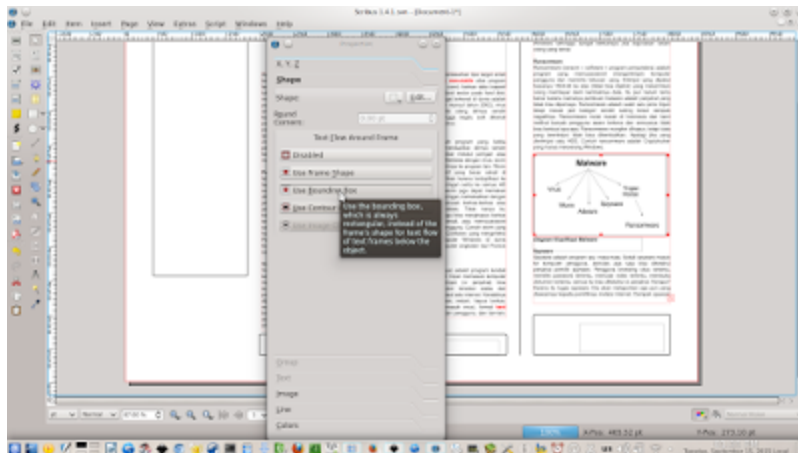
## Format Text

Click the text frame, press F2 (Properties), open Text tab, change the font into FreeSans Medium 7 pt with space for 9 pt. Your fundamental layout is almost finished. See result below.



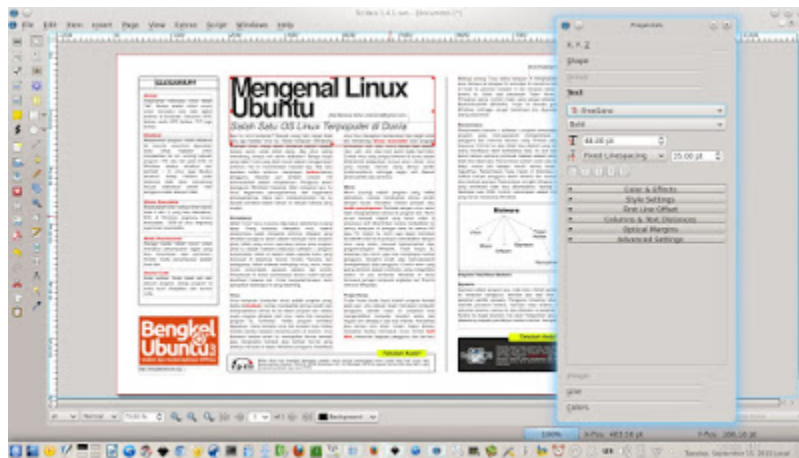
## Insert Picture

Click Insert Image Frame (I) button, put in a place even on your text. You will see a blank frame just like Text Frame. Double click it, select picture you have prepared. See result below.



## Eyecandies

Above, you've got the basics. The basic concept of desktop publishing (dealing with text) in Scribus. Now, with that basic concept, repeat it to create the title text and another text boxes. Place some pictures too. For example, see this final result:





# HOW TO CREATE MAGAZINE COVER LAYOUT IN SCRIBUS

[Source URL](#)

As I said yesterday, I will share how to create magazine cover layout in Scribus. This thing has a little difference compared to internal page layout. You will need a large image as background, a magazine logo, and some icons. Of course I write this tutorial based on my digital magazine I've mentioned. Believe me. It is easy while you know the workflow in Scribus. Enjoy.



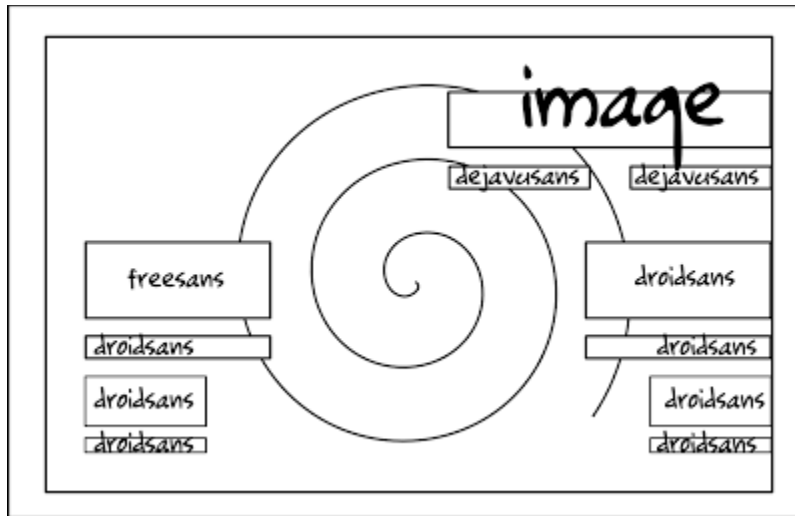
## Ingredients

1. Scribus
2. Properties (F2), Text Frame (T), Link Text Frame (N), Insert Image Frame (I)
3. FreeSans, DroidSans, DejaVu Sans
4. A large picture (PNG)
5. A magazine logo (PNG)
6. Some icons (PNG)
7. Small is beautiful
8. Focus on the blank spaces, not the contents
9. Don't think Scribus as Libreoffice Writer, they are too different
10. Pen and paper

All files you need are available to [download here](#) (20 MB, Mediafire).

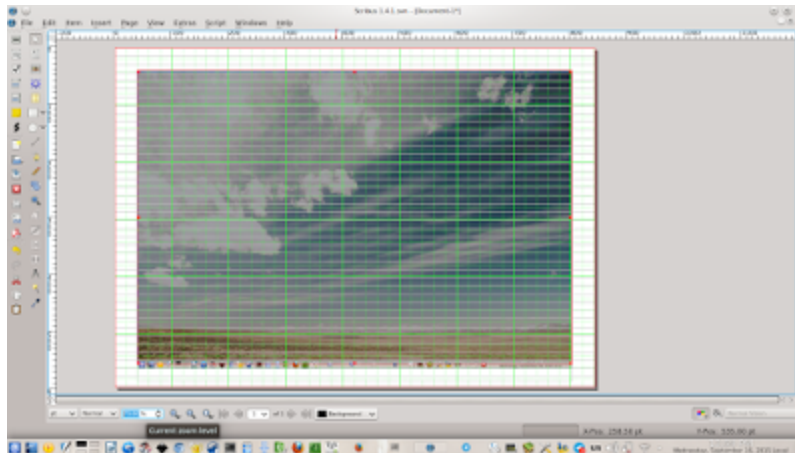
## Sketching

Same like yesterday. Sketch on your paper a concept layout design like this.



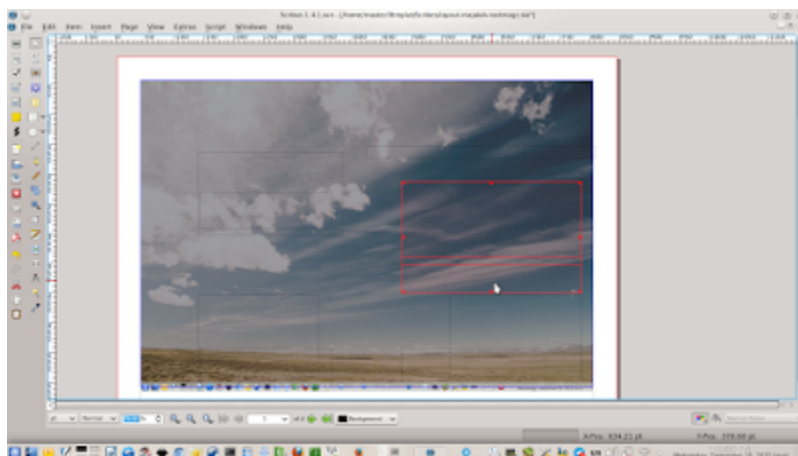
## Putting Background

Click Insert Image Frame > make it full of inner margin > Ctrl+I > select your large image.



## Putting Text Boxes

Create text boxes (Scribus calls it text frame) based on your sketch. These will be placed atop your background image. You will see the result like this.



## Type Text

Put the text of titles you want into every text box.

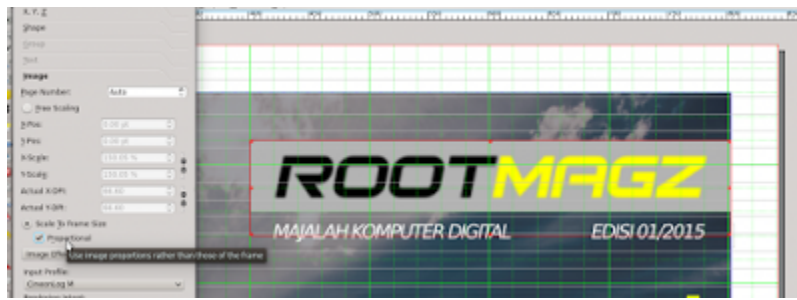
## Format Text

Make it bigger and nearer. Give it FreeSans. Give it 72pt in size. Give it Yellow color from Color & Effects section. Use F2 > Text > Advanced Settings > Manual Tracking > set -12%. See picture below.



## Putting Magazine Logo

Now, we should give it magazine logo. Place an image box on top. Scribus calls it Image Frame. Click Insert Image Frame > place it on top of page > Ctrl+I > select image. See picture below.



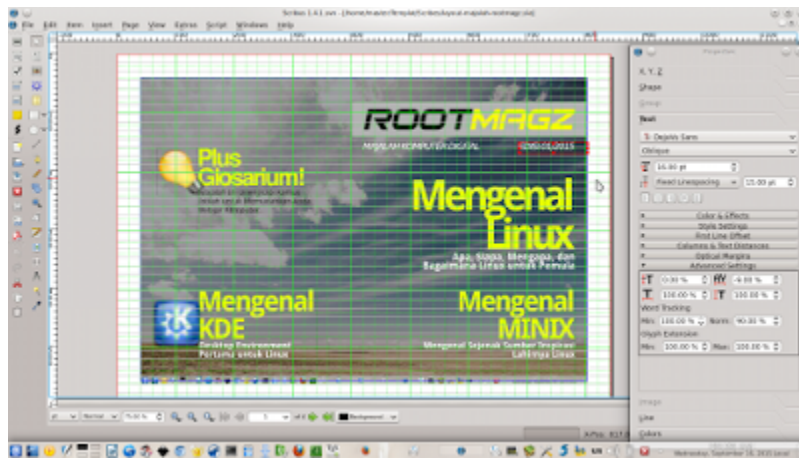
## Putting Another Logos

See example. We need two more logos. Place image frame > Ctrl+I > select icon. Place it properly on top of text. See result below.



## Eyecandies

You have the basic. Now, put another text boxes to fill the blanks. See the final result as below:



## Credits

- KDE logo and Lamp logo is from Oxygen Iconset, they are copyrighted works from Oxygen Project.
- FreeSans, DejaVuSans, and DroidSans are copyrighted fonts from respective authors.

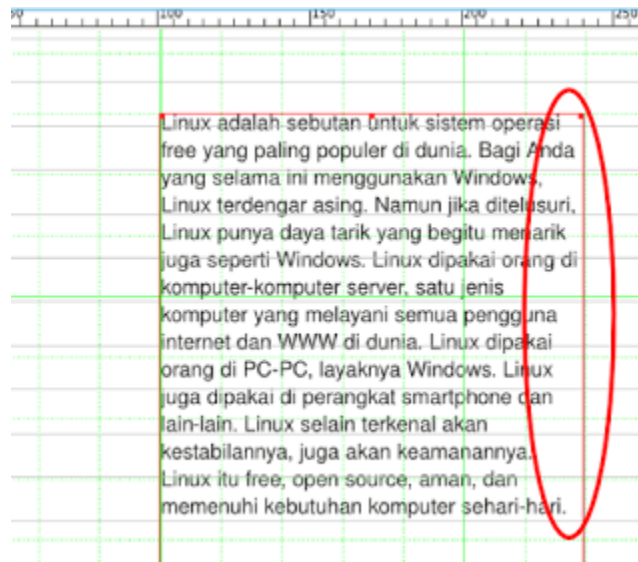
# HOW TO HYPHENATE TEXT INSTANTLY IN SCRIBUS

[Source URL](#)

In case of text management in Scribus, you will deal with Align Text Left or Align Text Justified. In almost every magazine, the common alignment is justified. The problem is space left outside text and blank space inside text. To resolve these, Scribus brings you sophisticated feature named Hyphenate Text. Access it from menu Extra > Hyphenate Text. I write this article as addition for our previous tutorial. See examples below.

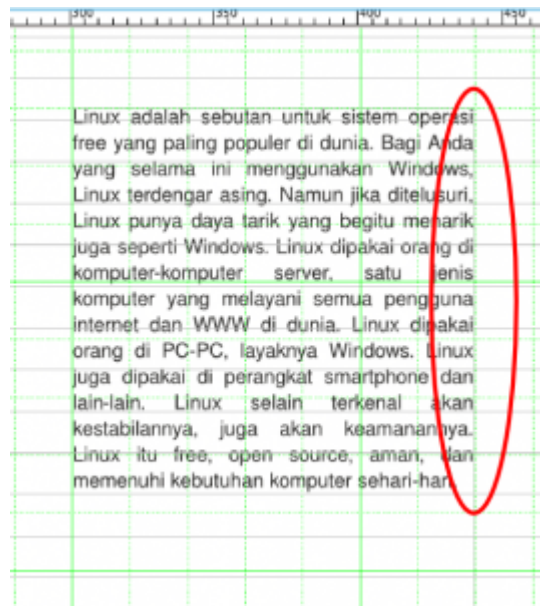
## Align Left

This is the pure Align Text Left effect. No hyphenation. See the right edge of whole text. It looks like "jaggies".



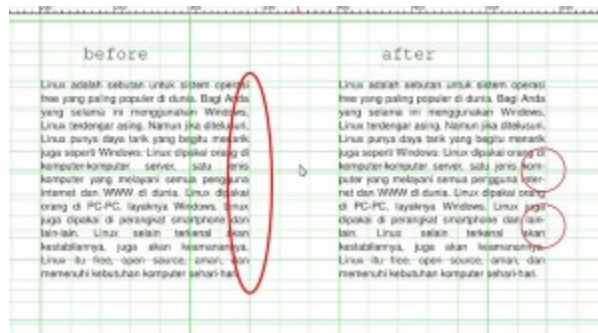
## Align Justified

This is a justified same text. It is better than Align Left.



## After

Click a text frame > menu Extras > Hyphenate Text. After that, some of your text will be "cut off" in the edge. It produces more tidy edge, less white space inside, and will save white space outside if you have many text.



## Dehyphenate

If you want to revert it back, just access menu Extra > Dehyphenate Text. It will be justified text only without hyphenation.



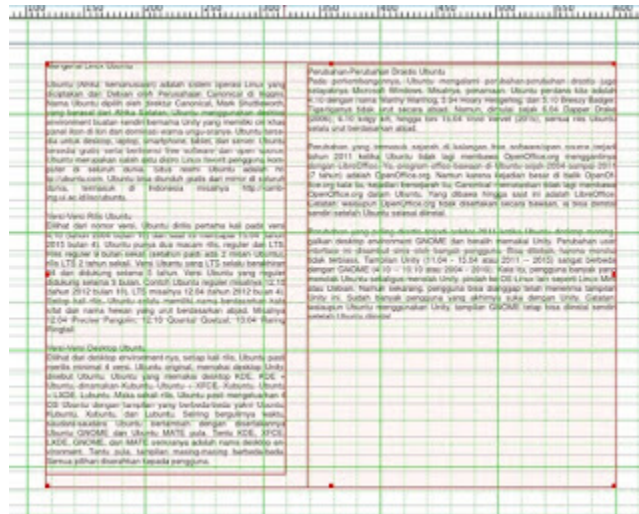
# HOW TO CREATE IMAGE TEXT FLOW IN SCRIBUS

[Source URL](#)

Scibus provides image text flow feature. This is how your text flows naturally around image like you see in many publications. This is reached by editing boundaries (Scribus calls it Contour Line) of an image. The text will automatically flow, following your boundaries form. Follow this example.

## 1. Create Text Boxes

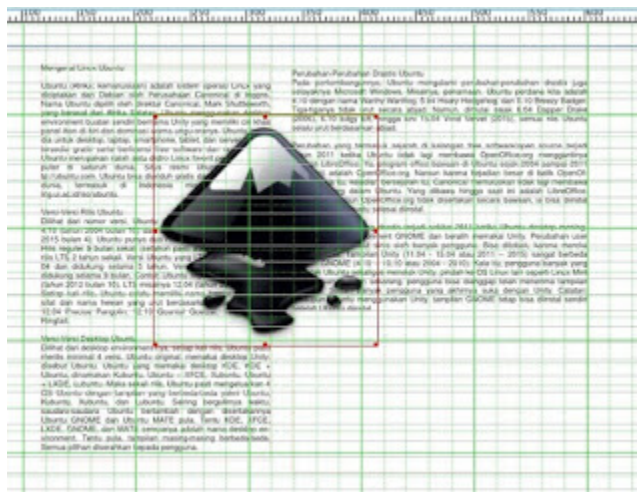
To see this feature well, create two columns.



## 2. Create Image Frame

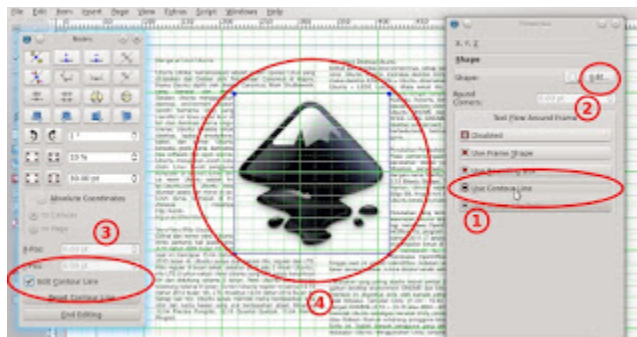
Place an image frame on center of two columns. Let the image as is for now. See picture below.





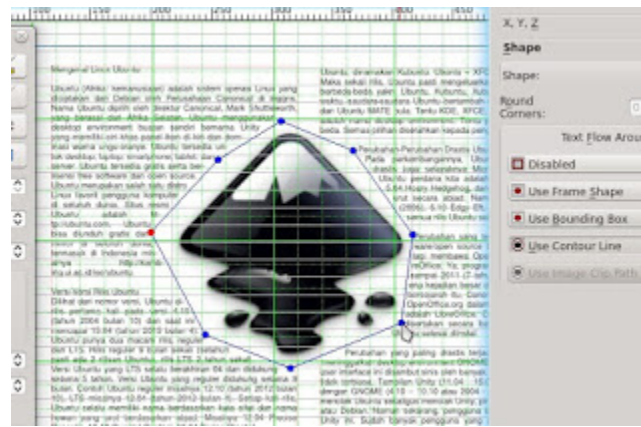
### 3. Edit Boundaries

Press F2 > Shape > Edit Contour Line > click Edit button > click edit blue lines around image. You may add more nodes by using Add Nodes button. See picture below.



### 4. Finishing

Edit and edit the boundaries (Contour Line) so the text will flow flawlessly following your image form. Don't forget to click End Editing button. See this final result.



## 5. Export

After you finish all tasks, see the result by exporting it to PDF. My result will be like this.



# HOW TO INSTALL FREEDOS IN VIRTUALBOX ON UBUNTU LINUX

[Source URL](#)

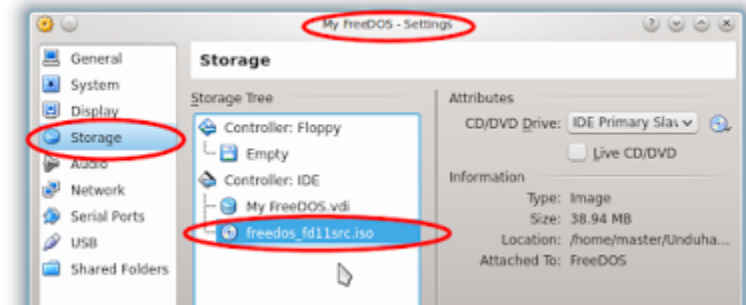
After years, people doesn't use Disk Operating System (DOS) anymore. Among many DOS systems ever available, MS-DOS was the most popular for desktop computers. But probably for some purposes such learning the basic of Windows command system, learning to install an OS with many disk series (and how to do it later on Debian), playing old DOS games, or any other learning purpose, you will need MS-DOS again. But MS-DOS was proprietary and was abandoned by Microsoft. Don't worry, free software community has created FreeDOS as 1:1 replacement for MS-DOS. FreeDOS was licensed with GNU GPL v2 and available freely. It's almost 100% compatible with MS-DOS internally (to help install some Windows systems) or externally (to install many MS-DOS games or programs). Now, we want to share how to install FreeDOS in Virtualbox. We use Ubuntu as host.

## Obtain FreeDOS ISO Image

You should have FreeDOS image first. Download it from FreeDOS official site <http://www.freedos.org/download>. For example, we download fd11src.iso 40 MB.

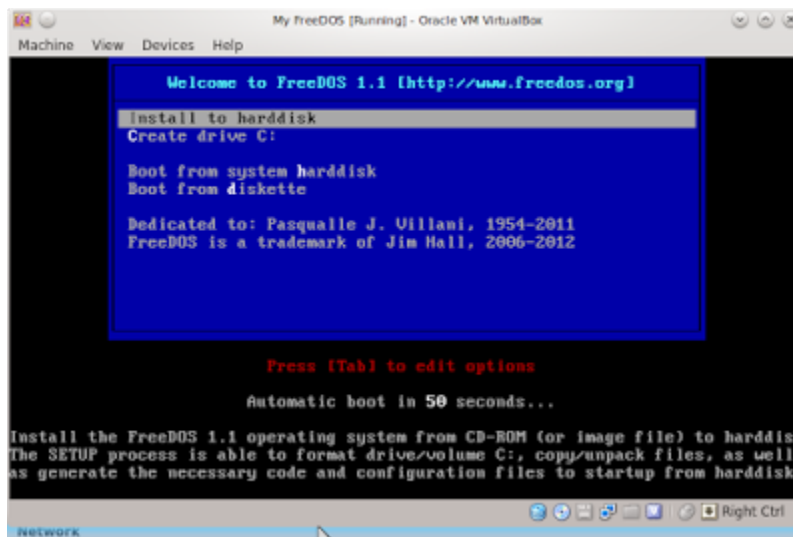
## Preparing Virtualbox

1. To install FreeDOS inside Virtualbox, first create its virtual environment.
2. Create a new virtual machine (Ctrl+N). Give it name My FreeDOS.
3. Give it virtual RAM as 32 MB.
4. Create a new virtual disk (VDI) as 500 MB.
5. Attach FreeDOS ISO image you've downloaded into this virtual machine.



## Pre-Installation

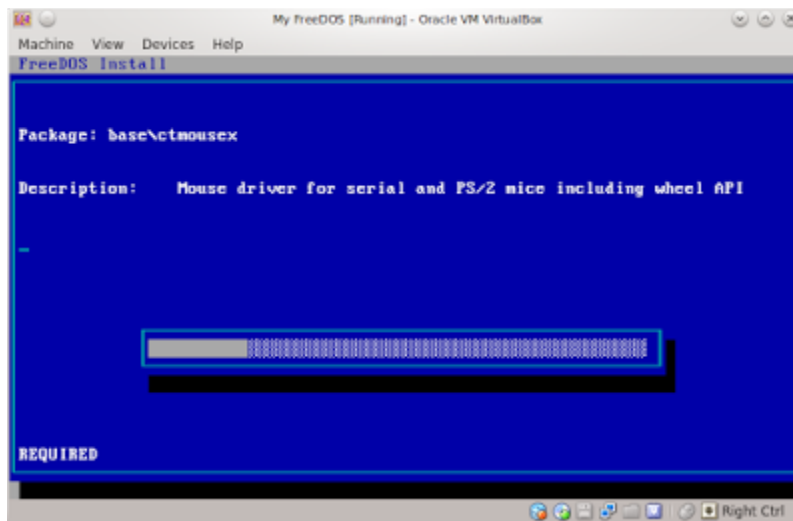
1. Run your My FreeDOS virtual machine.
2. On the first screen, a blue screen like BIOS appears offering to install FreeDOS. Answer with Enter.
3. Second screen, a black screen, appears offering to format (fdisk) your hard disk. It is virtual machine so no worry. Press 1 instead and press Enter.
4. Blue screen with menu-driven interface again. After this, all screens will be like this. You will choose keyboard. Select English (US) by pressing Enter.
5. FreeDOS setup says you haven't format your HDD. Follow it, select Yes and press Enter. If there is any confirmation question, answer it YES.
6. Next two screens are just confirmation to continue FreeDOS installation. Press Enter instead.
7. Here, you've finished pre-installation stage.



## Installation

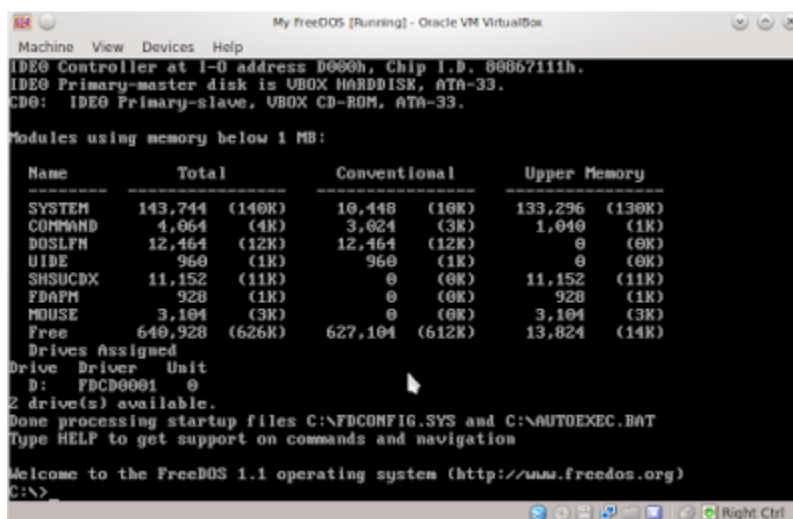
1. In this stage, you will deal with OS installation progress.
2. Blue screen titled FreeDOS Install appears and show you GNU GPL license text. Press Enter. Any confirmation question should be answered by Enter instead.

3. FreeDOS Install will ask you for two things, where are the install files (source) and where will files be installed (destination). The default options are save. Press Enter.
4. FreeDOS Install will ask you for what FreeDOS components to be installed. If you are learning, choose the default options (only base and util selected) instead by selecting DONE button and press Enter. Yes, X character means selected (like a checkbox on GUI) and DONE text is a button.
5. FreeDOS Install will show you many package names with 'x' postfix such as kernelx, localizx, etc. Select DONE button and press Enter.
6. FreeDOS Install will show you the installation progress. It is very similar with Windows installation by visual appearance.
7. If FreeDOS Install asks you for more installation (such as "please insert disk #1"), then just press Enter. In our FreeDOS, it will add one more stage where it will install wgetx (dude, it's amazing), syslnxx, upxx, and so on.
8. The last blue screen, FreeDOS Install shows you've done the installation. It takes approximately just 5 minutes or less to install.



## Finalizing

A black screen appears ask you to choose what to do with your bootsector. It's somehow similar with bootloader installation in Linux. Just select number 1 (Write FreeDOS specific code...). After rebooting, just choose on "Welcome to FreeDOS" blue screen Boot from system harddisk option. Virtualbox will boot your installed FreeDOS. See our final result.



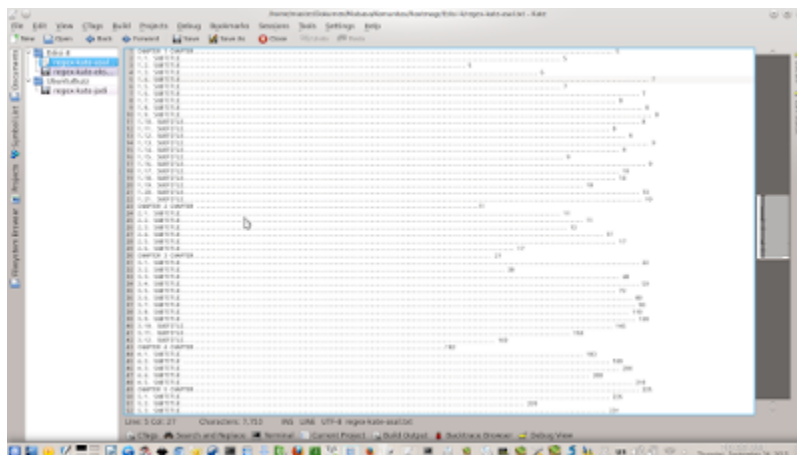
# REGEX SEARCH & REPLACE EXAMPLES IN LINUX TEXT EDITORS

[Source URL](#)

This article is intended as a simple introduction to regular expression. I will show it in search & replace feature of a text editor. I will use Kate here, but it is applicable to another text editors available such as Gedit. I will show you some short examples to make it easy. It is not the best, but I hope it gives you global overview of regex in Linux text editors.

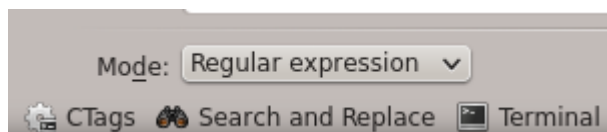
## My Text

This is the text being edited. This is basically just a table of contents I create in LibreOffice. It contains many lines, every line with beginning numbers -> subtitle -> dots -> then page number. We will "play" with them. I will use this text as example. You may download this text file in <http://pastebin.com/Z6SpwWyn>.



## Enable Regex Searching

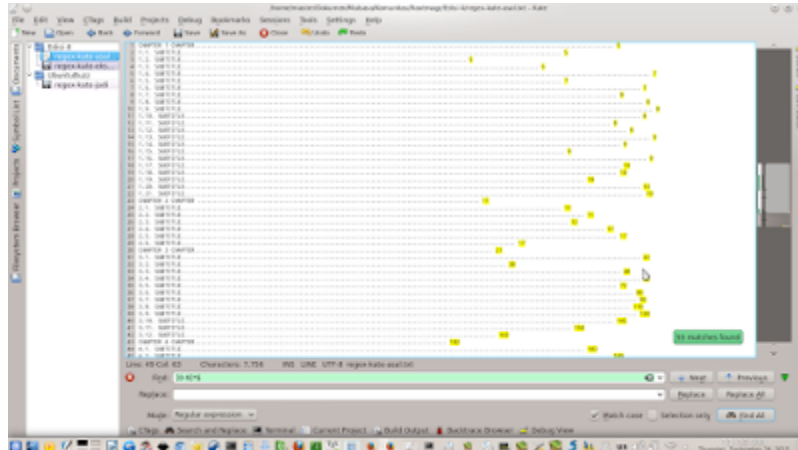
In Kate, press Ctrl+R to open Search & Replace facility. Then select Regular expression from Mode selection.



## Find The Page Numbers

`[0-9]*$`

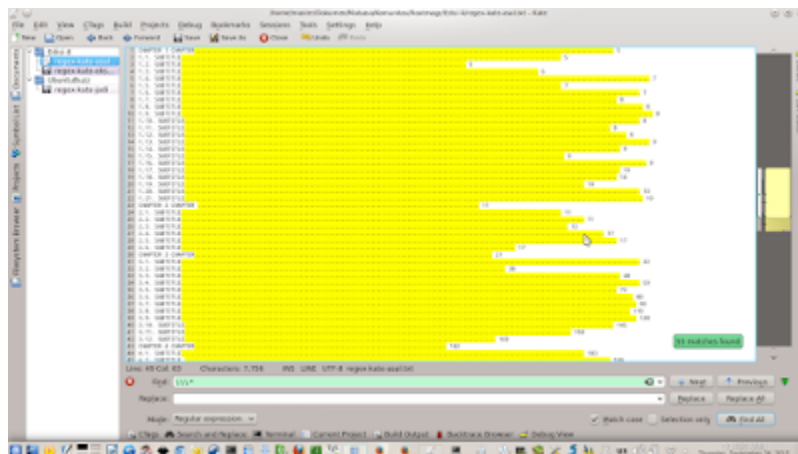
Because every page number contains number, we use [0-9] regex here. Because every page number may contain one or two or three number, we use \* regex here. Because the page number is always in the end of line, we use \$ regex here. So, complete regex will be \s[0-9]\*\$. See picture below.



## Find The Dots

\.\.\.\*

The dots on the center of every line have no same exact number. There is many dots, and every line has different number of it. But at least a line has three continuous dots so we use \.\.\. regex and we add \* regex in the end. We use three dots to distinguish it with dot in the beginning of every line. A single dot ( . ) has special meaning in regex, so we don't use it. We use instead a single slash single dot ( \. ) as escape character, as a normal dot matching with real dot in text. See picture below.

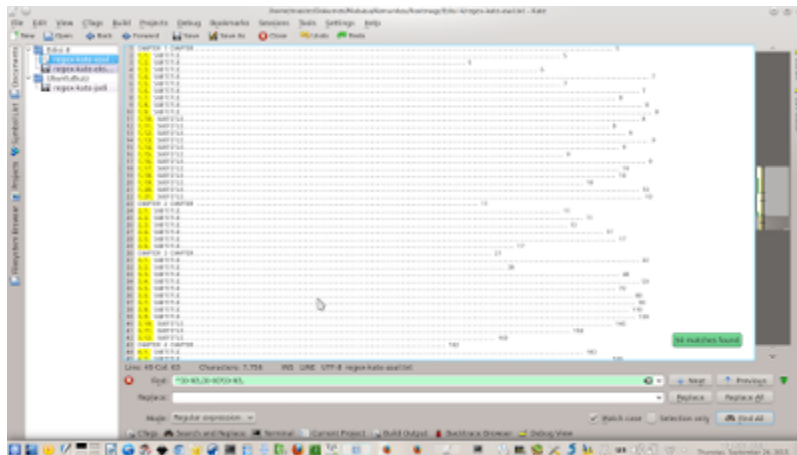




## Find The Beginning Numbers

`^[0-9]\.[0-9]?[0-9]\.`

Our beginning numbers in each line has format X.X. (notice the trailing dot) or X.XX. (notice the trailing dot too). So, the regex will be `[0-9]` for first one single number. Then, we add `\.` regex as replacement of dot (real dot in text) in the middle. Then, we add again `[0-9][0-9]` but we add `?` regex in the middle of both so it is `[0-9]?[0-9]`. Regex question mark (`?`) makes previous character optional, so it makes 1 (single number) or 11 (double number) match. We add again `\.` in the end so it will match real dot in text you've noticed above. Finally, we add `^` regex to match this regex in the exactly beginning of every line. So the final regex will be `^[0-9]\.[0-9]?[0-9]\.` See picture below.



## Reference

- <http://wiki.tcl.tk/1344>
- <http://stackoverflow.com/a/5583605/2187386>



# HOW TO INSTALL REGEX PLUGIN IN GEDIT

[Source URL](#)

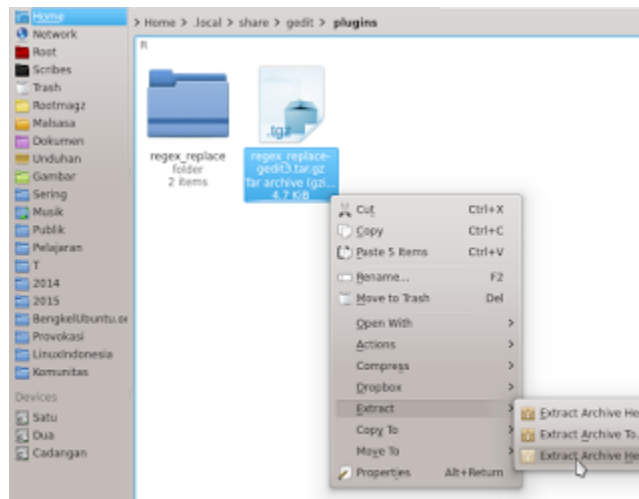
Gedit by default doesn't contain regular expression search. To get this feature, you should install a plugin. We will use Regular Expression plugin from [Ben Fisher](#).

## 1. Download Plugin

You can download the plugin at [regex\\_replace-gedit3.tar.gz](#).

## 2. Install Plugin

Copy the downloaded plugin file into `~/.local/share/gedit/plugins/` directory. Extract it.



## 3. Enable Plugin

Open Gedit > menu Edit > Preferences > tab Plugins > check on Regex Search and Replace.

# MY "PDF EXPORTING" OPTIONS IN SCRIBUS

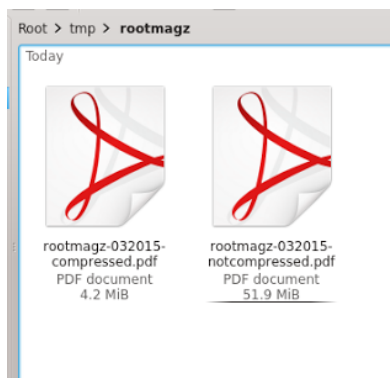
[Source URL](#)

There are some important options when exporting PDF in Scribus. There are also many professional options I don't know (e.g. I don't have any professional printing purpose). But for my design hobby, I get a good quality PDF when using these. I apply these for my digital magazine. I hope these will be useful for you too.

## 1. Compress File Size

A digital magazine file with only 4 pages costs 20 MB. That is too big. We can compress the size into almost a quarter (~5 MB) by enabling options:

- Compress Text and Vector Graphics
- Compression Method: Lossy - JPEG
- Compression Quality: Maximum
- See the size differences here (4 MB vs 51 MB):

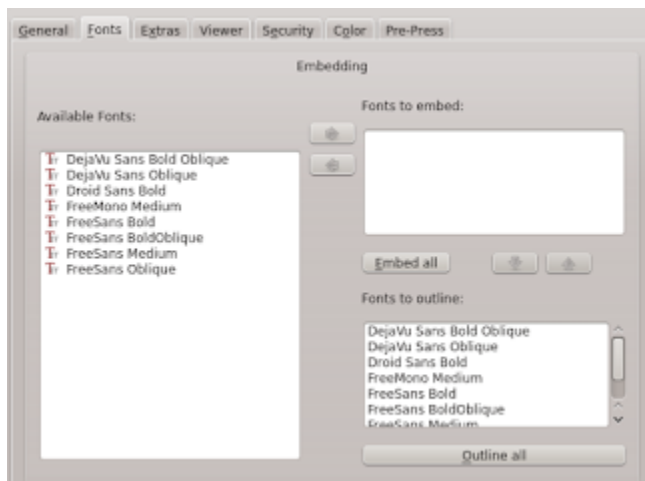


## 2. Font Embedding

Font embedding is important when you want your publication to display the same way as you designed it in every reader. For example, while you use the Bleeding Cowboy font but your readers don't have it installed on their computers, the PDF reader will replace that font with an existing font on their computers. Your design won't display as you want. So, you need to include the font into your PDF. How to do that?

1. Save as PDF.
2. Open tab Fonts.
3. Click Embed All.
4. If point 3 fails, click Outline All.

Now try to open your PDF in another computer. Your fonts within PDF must be same as you design it at your computer.



# A BASIC CHROOT EXAMPLE IN UBUNTU

[Source URL](#)

chroot (change root) is an isolation facility towards a process from Linux kernel. chroot changes the root (/) filesystem for one process into another directory. People calls chroot as jail, an environment when a process works only inside and can't see outside. In practice, creating a chroot environment is likely copying a program and its dependencies inside a directory then performing chroot command. In other words, chroot is likely creating a little clone of whole original system inside a directory. In Linux, chroot needs root user. You will see it. I will tell how to do chroot for bash by example. This tutorial is applicable to another Linux distributions such as Linux Mint or Debian.

## Overview

- We will create chroot for bash (GNU Bourne Again Shell).
- My \$HOME is /home/master.
- Here, I always use absolute paths to help distinguish between the original system and chroot system.
- What we will do are copying program and its dependencies. So before those, we need to set the directories structure.
- I write this article based on Ubuntu 14.04 32 bit.

## 1. Setting The Directory

```
mkdir box
mkdir -p /home/master/box/{bin,lib}
pwd
ls -R
```

Explanation: we must create the jail directories first. To clone the original system, we need at least bin and lib directory inside the jail. Using pwd and ls -R will help you see where are you and what directories inside.

```
ubuntu@ubuntu: ~/box
ubuntu@ubuntu:~$ mkdir box
ubuntu@ubuntu:~$ mkdir -p box/{bin,lib}
ubuntu@ubuntu:~$ cp -v /bin/bash box/bin
'/bin/bash' -> 'box/bin/bash'
ubuntu@ubuntu:~$ cd box
ubuntu@ubuntu:~/box$ pwd
/home/ubuntu/box
ubuntu@ubuntu:~/box$
```

## 2. Copying Program

```
cp -v /bin/bash /home/master/box/bin
```

Explanation: we want to create jail for bash. So we copy bash from /bin/bash (original system) into /home/box/bin/ (chroot system).

## 3. Copying Program's Dependencies

```
ldd /bin/bash
cp /lib/i386-linux-gnu/{library1,library2,library3} /lib/ld-linux.so.2
/home/master/box/lib
```

Explanation: ldd will trace what libraries a program need. By invoking ldd /bin/bash, we know 4 library files. Copy those 4 library files into /home/master/box/lib. In this experiment, I don't create i386-linux-gnu directory in chroot system but it works anyway. Notice that if you do this tutorial in another Linux distributions, or another Ubuntu version, you probably have different library directory.

```
ubuntu@ubuntu: ~/box
ubuntu@ubuntu:~/box$ ldd /bin/bash
linux-gate.so.1 => (0xb777f000)
libtinfo.so.5 => /lib/i386-linux-gnu/libtinfo.so.5 (0xb7747000)
libdl.so.2 => /lib/i386-linux-gnu/libdl.so.2 (0xb7742000)
libc.so.6 => /lib/i386-linux-gnu/libc.so.6 (0xb7592000)
/lib/ld-linux.so.2 (0xb7780000)
ubuntu@ubuntu:~/box$ cp -v /lib/i386-linux-gnu/{libtinfo.so.5,libdl.so.2,libc.so.6} /lib/ld-linux.so.2 /home/ubuntu/box/lib
'/lib/i386-linux-gnu/libtinfo.so.5' -> '/home/ubuntu/box/lib/libtinfo.so.5'
'/lib/i386-linux-gnu/libdl.so.2' -> '/home/ubuntu/box/lib/libdl.so.2'
'/lib/i386-linux-gnu/libc.so.6' -> '/home/ubuntu/box/lib/libc.so.6'
'/lib/ld-linux.so.2' -> '/home/ubuntu/box/lib/ld-linux.so.2'
ubuntu@ubuntu:~/box$
```

## 4. chroot

```
cd /home/master/box
pwd
ls -R
sudo chroot /home/master/box /bin/bash
```

Explanation: notice the /bin/bash path. This is already chroot system path, not our original system path. This command will invoke bash from /home/master/bin/bash, not from our Ubuntu /bin/bash. Don't remove the first slash (/) of /bin/bash or your chroot will fail. Do this command on root of our chroot directory structure (/home/master/box). And use sudo or it will fail too. Notice that your bash prompt will change into bash-x.y# (with x.y is its version number).

```
ubuntu@ubuntu: ~/box
ubuntu@ubuntu:~/box$ ls -R
.:
bin lib

./bin:
bash

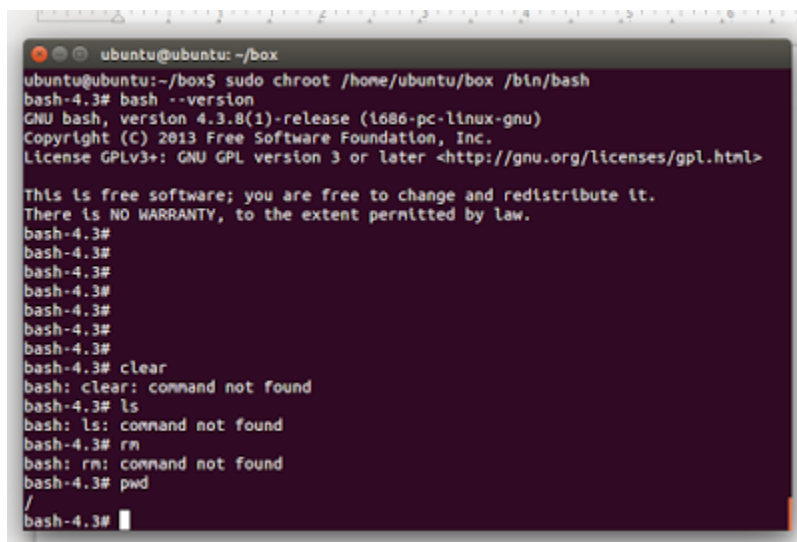
./lib:
ld-linux.so.2 libc.so.6 libdl.so.2 libtinfo.so.5
ubuntu@ubuntu:~/box$ sudo chroot /home/ubuntu/box /bin/bash
bash-4.3# bash --version
GNU bash, version 4.3.8(1)-release (i686-pc-linux-gnu)
Copyright (C) 2013 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>

This is free software; you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
bash-4.3#
```

## 5. Do Something Inside chroot

```
bash --version
ls
rm
mkdir
pwd
bash --help
```

Explanation: to help understand more about chroot jail, now execute some commands. You will notice any command outside chroot bash will fail (error: command not found). Only bash and its built-in command can be invoked. This means our chroot jail is success. The chroot bash can't see any directory outside our /home/master/box. We've succeed to isolate bash inside a chroot jail.



```
ubuntu@ubuntu: ~/box
ubuntu@ubuntu:~/box$ sudo chroot /home/ubuntu/box /bin/bash
bash-4.3# bash --version
GNU bash, version 4.3.8(1)-release (i686-pc-linux-gnu)
Copyright (C) 2013 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>

This is free software; you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
bash-4.3#
bash-4.3#
bash-4.3#
bash-4.3#
bash-4.3#
bash-4.3#
bash-4.3#
bash-4.3#
bash-4.3# clear
bash: clear: command not found
bash-4.3# ls
bash: ls: command not found
bash-4.3# rm
bash: rm: command not found
bash-4.3# pwd
/
bash-4.3#
```

## 6. Exit chroot

```
exit
```

Explanation: to exit chroot jail, in chroot bash, type exit.

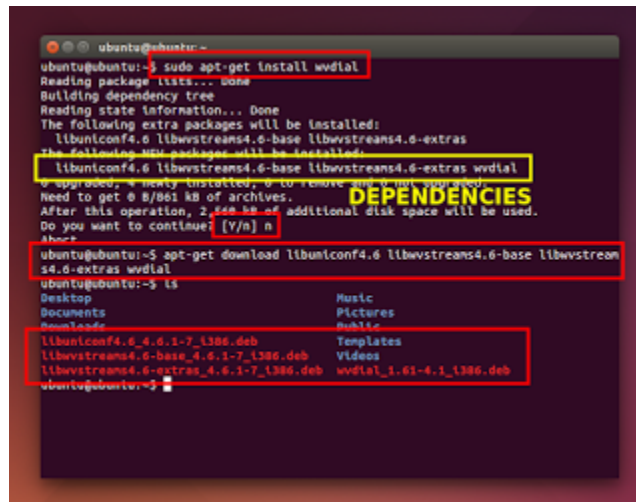
# HOW TO OFFLINE INSTALL WVDIAL FROM LIVECD IN UBUNTU

[Source URL](#)

This article will show you how to get wvdial from Ubuntu LiveCD and install it on a real Ubuntu. You exactly do not need internet connection to do all of this. This is applicable to any other Ubuntu derivative such as Linux Mint, because they all already included wvdial and its dependencies on LiveCD. Important: wvdial from Ubuntu 14.04 32 bit must be installed in Ubuntu 14.04 32 bit too, otherwise your system can be broken.

## 1. See The Dependencies

To see all packages needed by wvdial, type `sudo apt-get install wvdial` but don't press YES/don't install it. You will see at least 4 packages will be installed. They are the packages you need to install wvdial.



## 2. Select One Download Method

To retrieve all packages needed from a LiveCD, we need a method. At least, there are two methods available both by apt or dpkg. You may choose one you desire. Do these methods on LiveCD, not on the installed Ubuntu system.

### A) First Method: apt-get download method

```
apt-get download dependency1 dependency2 dependency3 dependency4
```

This will download 4 packages into current directory. Copy them all into a folder named

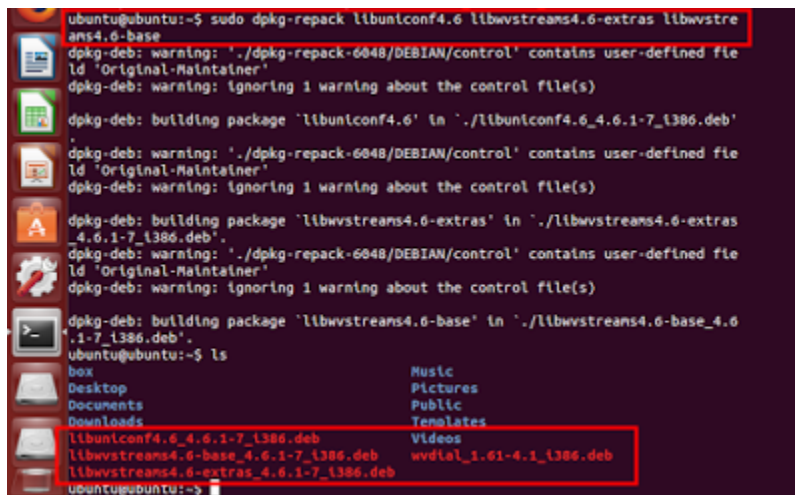


**wvdial\_trusty\_i386** (if you are using 14.04 32 bit) in your removable media.

### B) Second Method: dpkg-repack method

```
sudo apt-get install wvdial  
dpkg-repack dependency1 dependency2 dependency3 dependency4
```

This method will install wvdial and its dependencies first on your LiveCD -> all wvdial dependency packages unpacked into its own directory -> dpkg-repack does repack for an already installed wvdial dependency packages -> all wvdial dependencies collected successfully on current directory. Now, copy these 4 dependency packages into a folder named **wvdial\_trusty\_i386** (if you are using 14.04 32 bit).



### 3. Install The Packages

- Copy the folder **wvdial\_trusty\_i386** into your \$HOME so its path will be /home/you/wvdial\_trusty\_i386.
- Do cd command into it, for example cd /home/user/wvdial\_trusty\_i386.
- Do dpkg installation command, for example sudo dpkg -i \*.deb.
- Finish.

